ABSTRACT
METHODS OF OPTIMIZING STOCHASTIC PROCESSING PARAMETERS IN CROP HARVESTING MACHINES

The flow of crop material through a harvesting machine, such as a combine, can be described using a wide range of models, providing a relationship between the harvester load $u(t)$, e.g. the mass flow at the inlet, and an effectiveness value $y(t)$, e.g. the grain loss at the outlet. However, prior art models are not applicable to a wide range of harvesting conditions or are very complicated, requiring a multitude of inputs. The invention proposes to use a simple model, comprising a stochastic parameter ϑ, which is continuously optimized to adjust the model to the latest prevailing working conditions. Such parameter may be considered to constitute a variable which characterizes the instantaneously prevailing readiness of the harvesting process. Such variable ϑ can be used for establishing field maps showing the evolution of the harvesting operation itself. It can also be used in automatic routines which adjust the harvester speed in order to limit the grain losses.